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ABSTRACT

Projects of the New England Instructional Television Research Center (NITREC) are summarized in a collection of papers. Objectives, rationale, and program of NETREC are defined, along with methods of formative evaluation during production. Seven videotest research projects cover methods of evaluating communicative effectiveness of primary-grade educational television (ETV) presentations; methods for determining preschool children's comprehension of ETV program content; effects of format, soundtrack, and children's age on comprehension; appropriateness of age/grade designation, and evaluation of a bilingual program, "Mundo Real." (SK)

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New England Instructional Television Research Center
(NETREC)

Bernard Z. Friedlander and Harriet S. Wetstone

July 1975

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April 1, 1975

NEW ENGLAND INSTRUCTIONAL TELEVISION RESEARCH CENTER

(N E T R E C)

OBJECTIVES

RATIONALE

PROGRAM

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A private urban University, supported by alumni, friends, foundations and corporations.

NEW ENGLAND INSTRUCTIONAL TELEVISION RESEARCH CENTER

(N E T R E C)

OBJECTIVES

1. Provide impartial, independent evaluation of the effectiveness of instructional/informational television programs in communicating to their intended audiences, and to conduct evaluations independent of any commitment to a particular production or broadcasting function, publishing interest, or educational point of view.

2. Devise general models for systematic assessment of comprehensibility and comprehension of instructional/informational television programs by specific target audiences as a routine part of the television production process.

3. Disseminate technical expertise for conducting comprehension and comprehensibility assessments among agencies and personnel concerned with television production in education and mass communications.

4. Contribute to the advancement of television as a major learning resource in contemporary education.

RATIONALE

It is now almost universally acknowledged that broadcast television is one of the most potent forces in the lives of American children. Nevertheless, television occupies only a minor role in contemporary schools, despite the tremendous power the medium has demonstrated in shaping knowledge, ideas, attitudes, and values.

In the early future new technologies such as cassettes and cable promise to make the dissemination of educational television programming even more flexible and widespread than it is today. These technologies could become the crucial link in actualizing major new developments in education such as truly individualized instruction, expanding home-based instruction and open universities, and making education more relevant to a complex society.

However great these potentialities are, the impact of television on the schools will continue to be minor without satisfactory demonstration that individual instructional television

programs can be trusted to communicate specific curricular and transcurricular messages in ways that viewers clearly comprehend, and in ways that clearly affect their learning progress.

This problem of comprehensibility of learning materials points to an utterly astonishing incongruity in American education: enormous resources and sophisticated technologies are devoted to the systematic, almost obsessive measurement of the students' performance. Yet no systematic, widespread measurement whatsoever is devoted to evaluating the performance of the educational materials from which the students are expected to learn.

The absence of comprehension and comprehensibility assessment with instructional television is especially conspicuous. Recent research shows that informational television programs cannot be counted upon to communicate effectively to audiences of students and others to whom they are directed. Viewers often simply do not understand important aspects of the message in the ways in which they are presented. If they cannot understand, they cannot be expected to learn.

Access to stable, reliable information about the effectiveness of instructional television programs is the crucial, missing element in expanding the power of television as a major force in modern education.

When presently available methods become accepted in common use for attaining information about the comprehensibility of educational television, educators who make television policies and producers who make television programs will at last have an objective way to make and justify the very large investments that the wise use of television requires.

PROGRAM

Immediate:

1. Assess comprehension and comprehensibility of individual instructional television programs and program series

   a) among representative samples of target audiences

   b) under naturalistic classroom and other learning conditions representative of actual instructional environments.

   Conduct these assessments with completed programs and portions of programs as they are in production.

2. Provide comprehension and comprehensibility assessment findings to producers, distributors, and educational agencies that utilize the programs.

3. Devote particular effort to assessing comprehensibility and communicative effectiveness of programs dealing with high priority "transcurricular" topics of special social significance (accident prevention, health and hygiene, drug abuse, ethnic community relations, vocational education, etc.).

4. Devote particular effort to assessing the comprehensibility and communicative effectiveness of television material directed to audiences with special informational needs (mentally retarded, hearing/vision impaired, preschool and primary age, etc.).

5. Conduct basic research studies of visual, auditory, and language attributes of instructional television programs that enhance or impede effective communication to various representative audiences.

6. Continually upgrade technical expertise for conducting assessment procedures.

Long Range:

7. Conduct basic research on children's acquisition of media literacy and on the comprehension and comprehensibility characteristics of distinctive target audiences and specific programs.

8. Refine methods for disseminating techniques and findings generated by this Research Center to producers and educational agencies that utilize television materials.

9. Develop a professional staff and consultant group informed on various aspects of the applications of television technology in education -- uncommitted to any production, sales, or commercial interests.

10. Provide data-based professional consulting services to producers, broadcasters, and educators on various aspects of television in education.

11. Contribute to and exchange information with national and international agencies concerned with the enhancement of effective television and mass communications in all areas of education and the dissemination of information.

U N I V E R S I T Y O F H A R T F O R D

200 Bloomfield Avenue, West Hartford, Connecticut 06117

October, 1974

NEW ENGLAND INSTRUCTIONAL TELEVISION RESEARCH CENTER

(N E T R E C)

Bernard Z. Friedlander, Ph.D.

Director

MAXIMIZING COMPREHENSION OF INFORMATIONAL FILMS AND VIDEOTAPE:

Formative Evaluation During Production

The purpose of this memorandum is to provide a brief description of an operational method for assessing viewers' comprehension of informational films and videotape.

The objective of conducting such assessment is to determine the communicative effectiveness of these films and videotapes, and to upgrade them so as to make sure that information is presented in ways that target audiences most readily understand.

The unique feature of formative evaluation is that these assessments are conducted as a part of the production process. Hence it is possible to generate feedback on communicative effectiveness to specified audiences while the tapes and films are actually in production -- when revision is most economical.

In the interests of brevity and emphasis upon the operational plan, this description does not discuss the reasons why assessing comprehension is important for improving the informational effectiveness of films and videotapes. These reasons are set forth at length in other memoranda and reports (see Appendix).

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It is sufficient here simply to sum up two principal points:

1. Comprehension and comprehensibility of informational films and videotapes are the fundamental prerequisites if they are to have any communications benefit -- whether for instructional learning, expanding awareness of new fields, product descriptions, personnel training, public information, or any other purpose. Audiences cannot respond positively to film or videotape material they do not adequately understand. Recent research strongly suggests that these materials are often not adequately understood.

2. The formative stage of film and videotape production is the critical point for conducting systematic evaluation of the communicative effectiveness of programs in reaching the audiences for which they are intended.

   At this stage systematic evaluation of audience comprehension helps producers eliminate sources of misperception and outright errors of understanding by determining the extent to which samples of target audiences actually understand program content. When these assessments are done during the production process revisions can be prepared and integrated into the final program at minimal cost.

A recent policy statement by Keith Mielke, Professor of Telecommunications, Indiana University, strongly substantiates the importance attributed to formative assessment during the production period.

> Production of television programs [and films] is a complicated process in which innumerable assumptions about audience attention, comprehension, and other reactions must be made. Expertise in the production process is needed so that a fair share of these assumptions will turn out to be correct.

> Experience shows, however, that expert judgments alone... are frequently wrong. Ultimately, there is no substitute for a try-out of the program with representative audience members.[1]

Despite the seriousness of problems of comprehension in communication by films and videotapes, no effective means have yet become established to incorporate formative research as part of the normal production process within the general cost structure of producing modest-budget informational film and videotape programs. Hence, even as the critical necessity for formative research on program effectiveness becomes recognized, methods for performing this crucial part of the production process on a routine basis remain to be devised.

Recognizing this gap, investigators at the Psychology Department of the University of Hartford have devised new methods with which to measure comprehension and comprehensibility of film and videotape presentations. Collaborative work is now in progress with Connecticut Public Television to incorporate these test methods into the production process of informational programs.

This kind of formative research is not the only element needed to bring about a major improvement in the quality and effectiveness of informational films and videotapes. Yet it does constitute the single most powerful step that can be taken now, with reasonable resources, to produce a substantial increase in the effectiveness and accountability of such programs.

Operational Method

What follows is an overview of the operational method for conducting formative evaluation of informational film and videotape programs as part of the production process.

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[1]Keith W. Mielke, Decision-oriented research in school television. Public Telecommunications Review, June, 1974.

Measurement Techniques

The first requirement is to determine the level of audience media literacy and assess specific attributes of informational films and videotape programs that are more and less successful in communicating to target audiences.

Three distinctive techniques have been devised at the University of Hartford for assessing aspects of audience comprehension of informational film and videotape presentations. When these techniques are combined with orthodox survey and testing procedures they constitute a powerful method for determining response to specific aspects of programs by carefully chosen segments of the target audience to which the programs are directed.

These techniques lend themselves to efficient, relatively "mass production" assessment procedures, making it possible to identify the communicative effectiveness of individual linguistic and visual program segments for differentiated portions of sample audiences.

For example, it has been determined with highly explicit measurement data that members of a more competent audience quite readily understood a cutaway diagram of a housing structure in a program about homes around the world, while members of a less competent audience had great difficulty comprehending exactly the same explanatory sequence (see VIDEOTEST #1A, graph, test item 6).

These distinctive techniques involve the concept of the informational unit, an efficient workbook procedure, and stop-action testing. The information unit gives great flexibility and opportunity for fine-grained analysis in determining aspects of the program to be selected for assessment.

A 15-minute nutrition program now under analysis has been found to have 360 separately identifiable information units, an average of 24 information units per minute. Neither informational films, videotapes, nor any other instructional material is generally analyzed in terms of such discrete constituents of communication -- but this is the level at which communication succeeds or fails, and this is the level at which comprehension analysis must be undertaken.

The workbook procedure makes it possible to test as many people as may be viewing the program in an actual presentation situation. The method of stop-action testing allows the assessment of comprehension of individual information units by large numbers of viewers within the immediate time frame of the presentation of information being evaluated. Hence, the procedure consists more nearly of a "pure" test of comprehension, relatively unconfounded with issues such as short term and long term memory.

The reader must bear in mind that this overview does not and is not intended to deal with the intricacies of complex learning and cognitive integration. Comprehension is defined here primarily in terms that Carroll refers to as "plain sense comprehension,"[2] in which the receiver apprehends the surface information in messages without regard to the involvement of more elaborate inferential processes.

The techniques noted above are appropriate for assessing viewers' plain sense comprehension of informational film and videotape presentations. In addition, more complex aspects of comprehension are evaluated with highly detailed structured and unstructured interview procedures, general knowledge

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[2] John B. Carroll and Roy O. Freedle, Eds., Language Comprehension and the Acquisition of Knowledge, Washington, D. C.: V.H. Winston and Sons, 1972.

surveys, and tests of larger spans of information integration.

Measurements of attention such as the Kohnstamm-Levelt technique, adaptations of the Palmer visual distractor technique, the Friedlander PLAYTEST technique, and the Friedlander-Wetstone audio distractor technique are also available where appropriate.

The combination of these techniques gives the overall evaluation program unusual potency in determining the relative degrees of success and failure with which individual visual, auditory, and linguistic attributes of programs convey their meaning.

In addition to employing these and related inquiry techniques at their present level of development, the operational method also calls for a continuous process of upgrading the techniques through constant use and intensive statistical analysis of individual sets of performance data. As noted on the flow chart (page 10), comprehension assessment of both the target programs that are under production and of analogue programs comparable to those under production can be scheduled on a continuous basis.

Integration of Assessment and Production

The critical step is to use these techniques to help producers integrate maximum communication attributes into new program material:

1. within the existing general framework of production practices and production costs
2. as these practices and cost structures prevail in modest-budget production studios oriented to educational/informational material whether for intramural or public use.

Particular ingenuity is directed to formulating evaluation measures that can be integrated into the filming process with the least possible disruption of that process, and at the lowest possible cost. The next section indicates the careful thought and planning that have already been devoted to providing for the integration of the processes of producing program segments -- and then revision and refinement as required.

Operational Procedure

Methods for formative evaluation during the production of informational films and videotapes are presented here in two ways: by means of capsule statements describing the operations in the general order in which they are performed, and as a flow chart showing in graphic form the interrelating functions of the operations. This description explains the actual working relationships and specific tasks presently operating between the University of Hartford Psychology Department and Connecticut Public Television in the production of a bilingual/bicultural informational series.

Since the purpose of formative research lies in the success of the relationship between the assessment team and the production team, this process is always subject to review and revision to meet the distinctive needs of individual production centers.

1. Evaluation team and production team discuss concepts, objectives, and specific techniques of comprehension evaluation with subject matter specialists at the outset of development of new program series.

2. Evaluation and production teams discuss formative evaluation and review a sampling of completed comprehension evaluation studies -- with program materials,

evaluation procedures, and audience comprehension data set side by side.

3. Evaluation team and production team review with subject matter specialists the framing of the format for the new program in terms of specific elements of testable visual, verbal, and auditory segments expected to be produced. Participants identify program segments likely to involve distinctive comprehension problems regarding specific difficulties in visual or linguistic representation.

4. Production and evaluation teams review opportunities and constraints inherent in the film or videotape production process and anticipate liaison problems.

5. Evaluation team selects and production team confirms existing analogue materials generally comparable to anticipated program in format, general program style, and target audience.

6. Evaluation team prepares materials for assessment procedures involving analogous program segments and conducts comprehension evaluations with representative sample audiences.

7. Production team prepares coherent, testable segments of new program with emphasis on material previously identified as posing particular problems in comprehension. Evaluation team conducts intensive field testing with target audience samples.

8. Production team uses comprehension performance data from initial field testing to revise format and content in terms of the sample audiences' demonstrated success and

failure in understanding test segments. Revise decisions and completion of program are based upon synthesis of comprehension performance data and production constraints.

9. Evaluation team conducts extensive field testing of completed first program in series to identify segments and attributes with greater and lesser degrees of communicative effectiveness with larger samples of target audience.

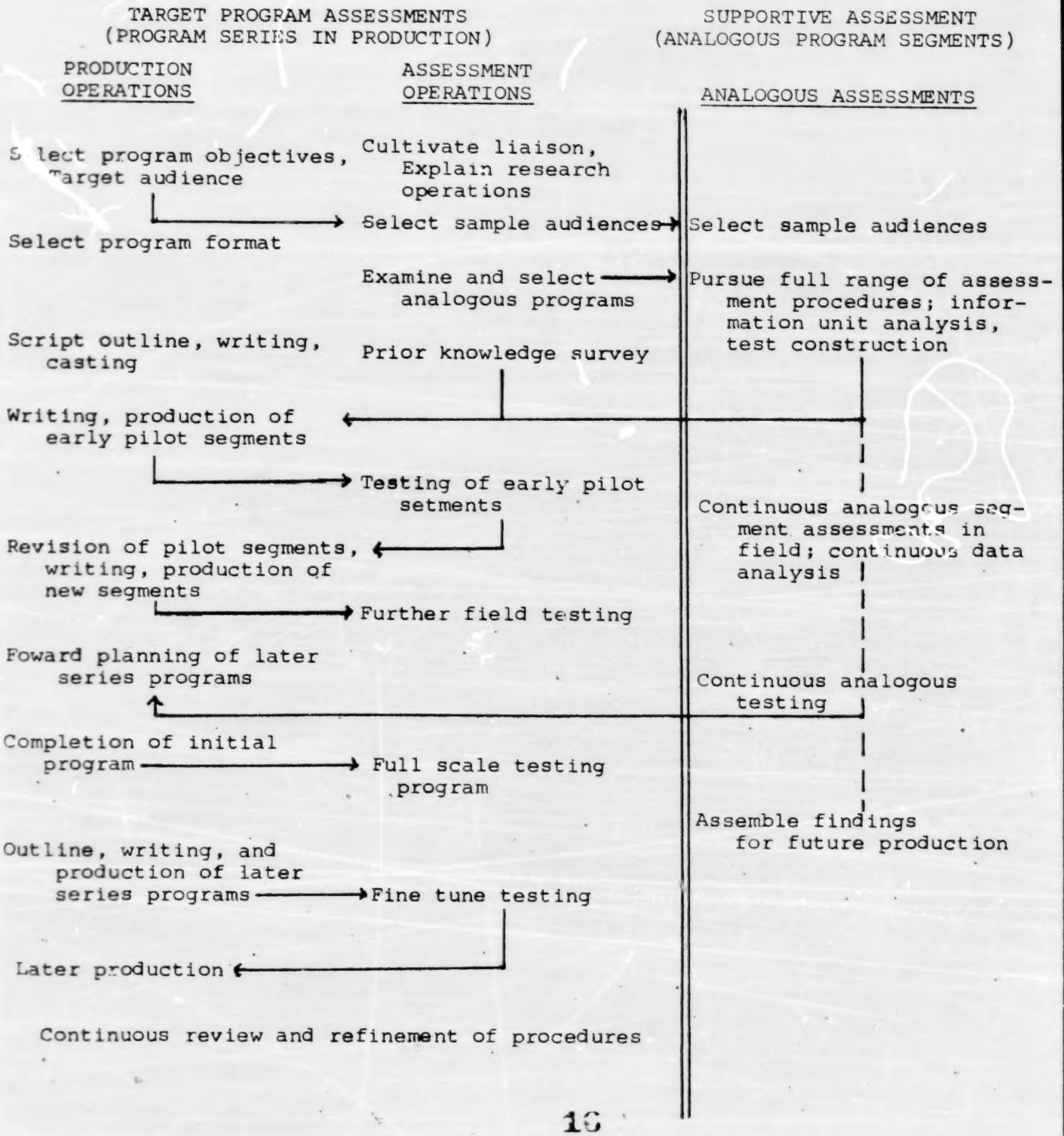
10. Production team incorporates these more extensive findings on comprehension performance into production of subsequent portions of series.

11. Evaluation team works with production team to "fine-tune" succeeding segments and completed programs with comprehension spot-check assessments where problems arise.

12. Evaluation and production teams systematize methods with increasing efficiency in subsequent productions.

These steps may be adjusted as necessary for individual productions and in association with individual production centers, according to variations in budget, personnel, prior experience, and the informational objectives for which films and videotapes are intended.

Table: OPERATIONS FLOW CHART


TARGET PROGRAM ASSESSMENTS
(PROGRAM SERIES IN PRODUCTION)
SUPPORTIVE ASSESSMENT
(ANALOGOUS PROGRAM SEGMENTS)
PRODUCTION OPERATIONS
ASSESSMENT OPERATIONS
ANALOGOUS ASSESSMENTS
Select program objectives, Target audience
Cultivate liaison, Explain research operations
Select sample audiences
Select sample audiences
Select program format
Examine and select analogous programs
Pursue full range of assessment procedures; information unit analysis, test construction
Script outline, writing, casting
Prior knowledge survey
Writing, production of early pilot segments
Testing of early pilot setments
Continuous analogous segment assessments in field; continuous data analysis
Revision of pilot segments, writing, production of new segments
Further field testing
Foward planning of later series programs
Continuous analogous testing
Completion of initial program
Full scale testing program
Assemble findings for future production
Outline, writing, and production of later series programs
Fine tune testing
Later production
Continuous review and refinement of procedures

APPENDIX

The following memos and reports state various viewpoints on improving the effectiveness of educational/informational films and video presentations by means of formative evaluation and research on audience comprehension.

These methods also have applications to all forms of film and video presentations that are intended to convey specific information to specific audiences.

We invite questions and discussion on any applications of these procedures to problems of communication in education business, and industry.

Friedlander, B. Z., Cohen de Lara, H., & Hesse, G. W. Systematic Measurement of Primary School Children's Comprehension of Classroom Educational Television at Three Grade Levels. VIDEOTEST #1, Laboratory Report A1 23, 1972.

_____. Instructional Television in the Primary School Classroom: New Horizons -- or Another Wasteland? January, 1973.

Laudati, R., Wetstone, H., & Friedlander, B. Z. Comparison of Middle-class and Migratory Worker Children on Instructional Television Comprehension Task. VIDEOTEST #1A, November,1973.

Staff Report: Measurement Method for Determining Preschool Children's Comprehension of Early Education TV Program Content. VIDEOTEST #3, June, 1973.

Wetstone, H. S., & Friedlander, B. Z. The Effect of Live, TV, and Audio Presentation Media on Primary Grade Children's Story Comprehension. October, 1973. Journal of Educational Research, in press.

Friedlander, B. Z., Wetstone, H. S., & Scott, C. S. Suburban

Preschool Children's Comprehension of an Age-appropriate Informational Television Program. Child Development, 1974, 45, 561-565.

_____. The Communicative Effectiveness of Television as a Teaching Medium in the Elementary School Classroom: A Program of Investigation. March, 1974.

_____, & Wetstone, H. S. Effects of Informational and Cartoon Program Format, Musical Distractors, and Age on Children's Listening to Television Soundtracks. VIDEOTEST #5, Summer, 1974.

Wetstone, H. S., & Friedlander, B. Z. The Classroom Listening Environment: An Objective Description of Instructive Interaction in the Primary Classroom. June, 1974.

Friedlander, B. Z., Kirk, G. E., & Wetstone, H. S. Prospectus: Educational Television Research Center. September, 1974.

University of Hartford

INFANT/CHILD LANGUAGE RESEARCH LABORATORY

Research Cover Page

Title

Friedlander, B.Z., Cohen de Lara, H., and Hesse, G.W. Evaluating the communicative effectiveness of primary grade level educational television presentations.

Problem/Purpose

To systematically evaluate the communicative effectiveness of primary grade level ETV presentations by eliciting objective responses to questions embedded in the program material from classroom-sized groups of children with minimal adult supervisory participation.

Population/Location

235 normal kindergarten, first grade, and second grade children in 11 groups from Bridlepath and Charter Oak Schools in West Hartford, Connecticut. The research was conducted during May and June, 1972.

Abstract

Audience response opportunities were integrated into an ETV program targeted for primary grades. Special instructions were also provided so that the children's responses would have the desired format. 97% of the 2,350 test responses were scorable, indicating that the special procedure was within the capability of primary grade pupils. The percentages of correct responses ranged from 36% in a "slow" kindergarten class to 95% in an advanced second grade class. The differences between grades were significant ($p < .05$) in all cases, indicating group differences in communicative effectiveness of the TV presentation at three grade levels. Differences in correct responses across test questions were considered indicative of the relative effectiveness of different segments of the TV program.

Interpretation/Practical Application

The results indicate that objective responses to test questions integrated into an ETV program can be elicited from groups of primary age children in a typical classroom situation. The responses can be used to evaluate the communicative effectiveness of ETV presentations to large groups, or to evaluate an individual child's receptive communication competence.

Comments

This technique is a promising tool for systematic evaluation of TV instructional materials intended for primary age children. The technique also offers substantial value in aiding the development of receptive communication skills in normal children, or those who reach school age with poorly developed skills in English usage.

University of Hartford
INFANT/CHILD LANGUAGE RESEARCH LABORATORY
Bernard Z. Friedlander, Ph.D., Director

Research Cover Page

Title

Staff Report: Measurement Method for Determining Preschool Children's Comprehension of Early Education TV Program Content.

Problem/Purpose

The goal of seeking to enhance young children's cognitive and affective development via TV programming has become an established reality. However, the effectiveness of individual program segments remains in doubt in the absence of methods for obtaining objective measures of young children's understanding of specific program content.

The purpose of these studies is to refine a new method for measuring young children's comprehension of visual and linguistic information in tuitional TV programs.

Population/Location

Study #1: Forty-two 4- and 5-year-olds in an Eastern urban Head Start Center. Other studies in progress.

Method

The children participated in pairs in a small room adjacent to their regular classes. Each pair watched a videotape with four 4-minute segments selected from the Most Important Person series. Each segment was followed immediately by a set of binary choice comprehension questions which the children answered by marking individual workbooks. The questions were designed to tap the children's ability to understand the action and comprehend concepts based on visual and linguistic information.

None of the children had any difficulty handling the workbook procedure. The data consisted of workbook scores computed in terms of percentages correct.

Results

Results to date of this continuing study take two forms--hard data, and the informed impressions of the children's comprehension by an experienced examiner. Scores indicate that the children's comprehension appears to be limited to recognition of superficial action and familiar facts. They seem unable to take up information unsupported by high degrees of redundancy. Also presenting difficulties are inferences about feeling tone and about continuities within serial actions. In the examiner's opinion, the melodic and rhythmic element in songs preempted attention from linguistic information contained in the lyrics.

Methodological factors requiring further refinement involve framing and presentation of questions.

Interpretation/Comment

It is apparent that these children do not absorb large elements of the cognitive and affective content of the program sequences.

Far more extensive research is required to refine the procedure, extend to more diverse populations, and identify specific variables of content a presentation that can lead to enhanced comprehension and effective communication.

University of Hartford
INFANT/CHILD LANGUAGE RESEARCH LABORATORY
Bernard Z. Friedlander, Ph.D., Director

Research Cover Page

Title

Friedlander, B.Z. and Wetstone, H.S. Effects of informational and cartoon program format, musical distractors, and age on children's listening to television soundtracks.

Problem/Purpose

Television programming appears to be an effective means of communicating to young children. Actually, however, very little is known about how well various programs communicate, or about the effect of numerous variables (children's age, program format, linguistic content, etc.) on that communication.

The purpose of this study was to investigate young children's listening behavior to three representative children's television programs, given a choice between the natural TV soundtrack and a musical distractor.

Population/Location

Sixty-eight children, 42 girls and 26 boys, participated in the study. All were enrolled in kindergarten through third grade classes in a public elementary school located in a working class neighborhood.

Method

The television programs consisted of (a) a nationally familiar children's TV personality explaining about steam, (b) a well known popular cartoon featuring a skit about summer camp, and (c) a tuitional cartoon about dental care. All three programs were approximately three minutes in length, and were shown consecutively with a 20 second break in between. Half of the children watched the programs in an a-b-c order, the other half in a c-b-a order.

The musical distractor consisted of a continuous 10 minute cassette loop of popular selections (all about a minute in length) such as might be encountered on a local radio station.

The children came to the television room, close by their regular classrooms, in groups of two. They were given a pair of earphones and a switch box to hold in their laps. The investigator explained that there would be music playing over their earphones at all times, and that in order to turn off the music and turn on the television sound they simply had to hold down the switch on their switch box. (The visual component of the television was continuous.) The children were told that they could listen to the music or the TV, and that they were free to switch back and forth whenever and as many times as they wished. A brief demonstration program assured

that the children understood the procedure and were comfortable with their earphones and switch.

Results

The data consisted of (a) the number of seconds each child spent listening to each program, (b) the number of switch responses to each program, and (c) a moment to moment on-line readout indicating distribution of switch responses within program time.

A detailed analysis of the data provided the following:

1. Very highly significant program effect (p .001):- the children clearly indicated their program preferences in terms of the percentages of listening response time for the television soundtrack or the musical distractor. The distractor was least distracting during the well known cartoon program; there were no significant differences between the other two programs.

2. Highly significant age effect (p .01) - the second and third grade children demonstrated more decisive listening preference for the most popular cartoon program than did the first and second graders. At the same time, however, the older children were more effected by the musical distractor. They listened to the TV soundtrack only 55% to 78% of program time as opposed to 75% to 90% of the time for the younger children.

3. Significant Gradex Order Interaction - the kindergarten (p .01) and the first grade (p .05) responded to the order of the programs as well as to the programs themselves. The kindergarten children, especially, spent less time listening to the TV for whichever program came first. This appeared to be more of a problem of response adaptation than an active response to the musical distractor.

Interpretation/Comment

The procedure described here indicates that it is possible to make exact numerical measurement of children's listening responses to television program soundtracks. These listening responses can be recorded so as to indicate exactly those portions of the program receiving greater and lesser degrees of attentional listening.

The findings suggest that children cannot be assumed to listen attentively to TV soundtracks - even to a highly popular cartoon, and even when they appear to be watching the visual display. Careful measurement is required to determine various factors that affect children's listening to TV and their comprehension of the materials to which they listen.

This procedure would appear to be especially valuable in ascertaining the effectiveness of various program formats and specifics of program content in mobilizing children's attentional listening to informational television programs. Further research in this area can be expected to establish patterns of children's attentional listening to TV program material in various school and home settings, with children of different age levels, scholastic competence, and linguistic-ethnic orientation.

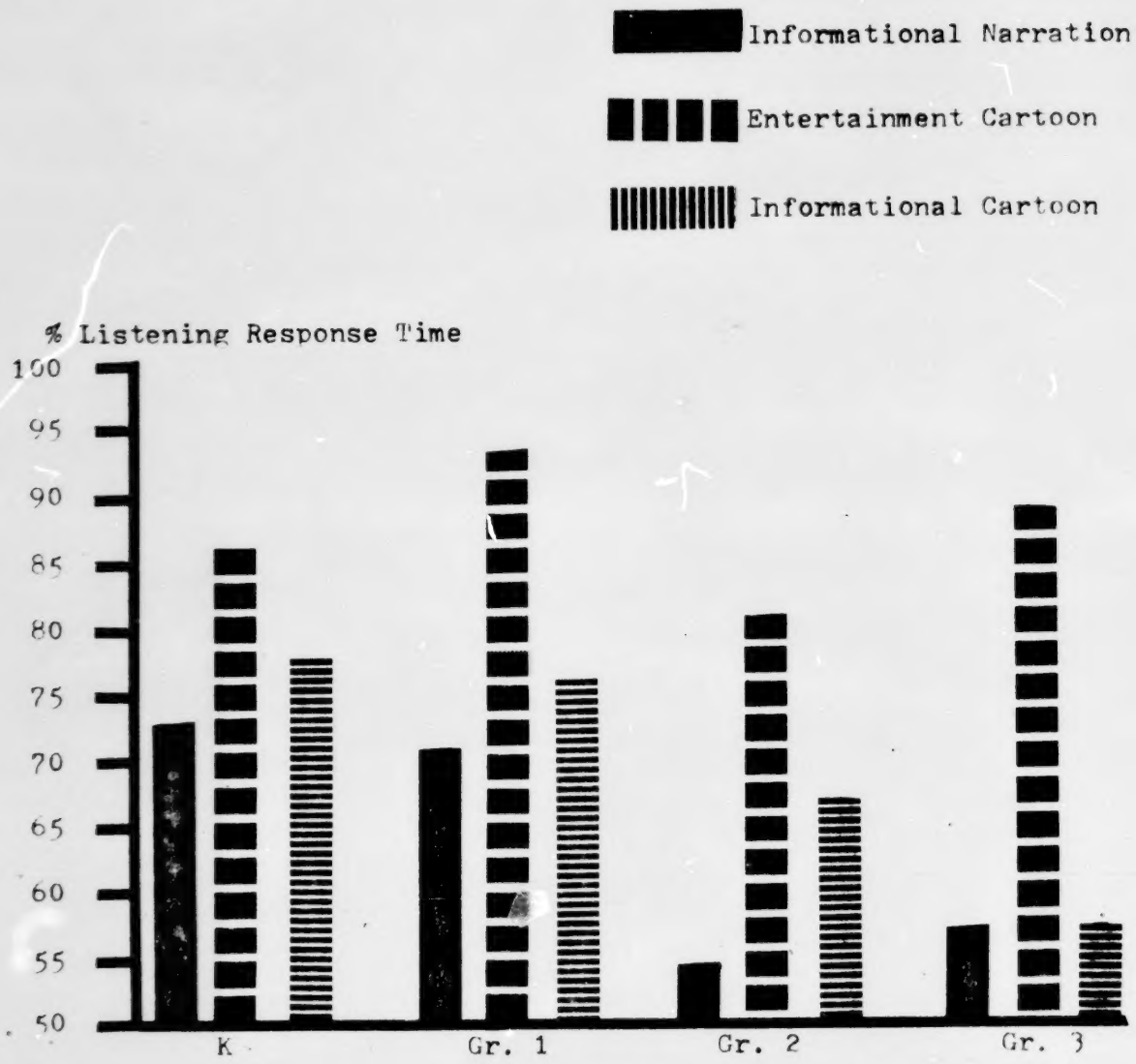


Fig.1 Children's listening response time for natural television soundtrack by grade and program. A distractor consisting of non-relevant music played through children's earphones whenever they did non operate switch controlling access to natural soundtrack.

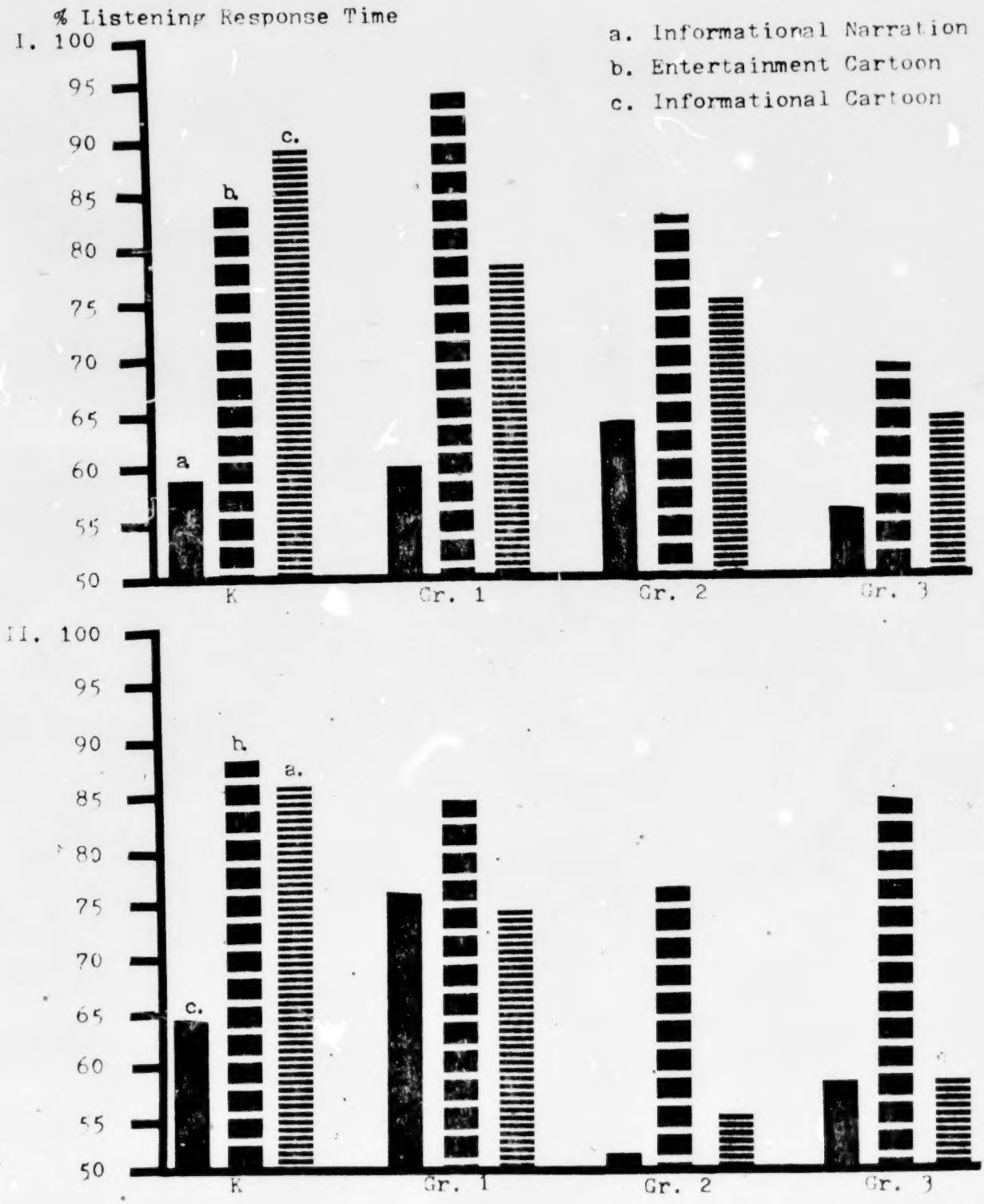


Fig. 2 Children's listening response time for natural television soundtrack: Effects of order of presentation. In Block I order of presentation of programs was a-b-c; in Block II, order of presentation was c-b-a.

VIDEOTEST #6
November, 1974

University of Hartford
INFANT/CHILD LANGUAGE RESEARCH LABORATORY
Bernard Z. Friedlander, Ph.D., Director

Research Cover Sheet

Title

Wetstone, H. S. and Friedlander, B.Z. Comprehension Evaluation of an ITV Program: Communicative Effectiveness and Appropriateness of Age/Grade Designation.

Problem/Purpose

ITV programming is available over a wide range of subject matter and grade levels. Unfortunately, however, the vast majority of programs are produced and distributed without regard to solid factual information as to whether the programs communicate effectively to the audiences for which they are intended.

The purpose of this study is to evaluate the communicative effectiveness of an 18-minute ITV program on nutrition targeted for the middle grades.

Population/Location

The study was conducted in two neighborhood schools, one an affluent suburban public school, the other a working class urban parochial school. 189 5th and 6th graders participated.

Method

Communicative effectiveness was evaluated by means of a series of comprehension questions administered with a simple workbook procedure. Comprehension questions were generated through an item-by-item analysis of the verbal and visual information in the program, and then selected on the basis of relevance to principal teaching objectives stated by the program producers.

As a preliminary procedure, all the children were tested on the basic concepts dealt with in the program. Two weeks later, the children watched the program on classroom television. A teacher aide presented the comprehension questions orally while the children marked their answers in their workbooks. For the majority of the children, the questions were presented during brief interruptions at appropriate points in the program. About 25% of the children were presented with all of the questions at once when the program was over.

Results

The data indicate that the program communicated poorly to the majority of the children. Comprehension score means for individual classes ranged

from 64% to 75% (see Table 1). Question-by-question analysis, however, indicates that a third or more of the children failed to comprehend more than half the information tested. Scores for the group who viewed the program without interruption were substantially lower than for the majority who answered the questions during program interruptions.

Low scores indicate that the children simply did not understand the program content.

Analysis of the program segments generating poor comprehension suggests that communication failure can be attributed to 1) use of concepts beyond children's understanding regardless of simplification; 2) failure to define terms which are superficially familiar but conceptually difficult; 3) use of visual illustrations which are logically sound, but either too abstract, or presented too rapidly to provide support for the appropriate concepts.

It is notable that one set of facts indicated by the program producers as a main teaching objective was communicated to less than half of the children (55% failure).

Comparison of preliminary scores to comprehension scores indicates an average gain of 23% of the children responding correctly (see Figure 1) to specific concepts. Gains were moderate to good on some concepts; presentation of two points actually produced deficits in comprehension.

Interpretation

The question at hand is not whether ITV programming communicates, but how well specific programs do their job. The evaluation procedure reported here provides detailed information as to which segments of the program communicate well, or poorly, or not at all. Such information is clearly necessary if ITV programming is to fulfill its objectives and justify its place in the classroom and its tremendous cost to produce and disseminate.

TABLE 1

GRADING THE LEARNING MATERIALS

INSTEAD OF

GRADING THE STUDENTS

If a certain widely used 18-minute ITV program on nutrition were graded for performance in school the same way that children are graded for performance in school, its report card would look like this:

SCHOOL GROUP		"AVERAGE" SCORE**	REPORT CARD
Middle Class Suburban (n=40)	6th grade	75.0	C
Middle Class Suburban (n=59)	5th grade	71.0	C-
Working Class - City (n=42)	6th grade	71.0	C-
Working Class - City (n=48)	5th grade	64.5	D

N=189

**Average scores on 28 questions testing comprehension of principal visual-linguistic facts and concepts

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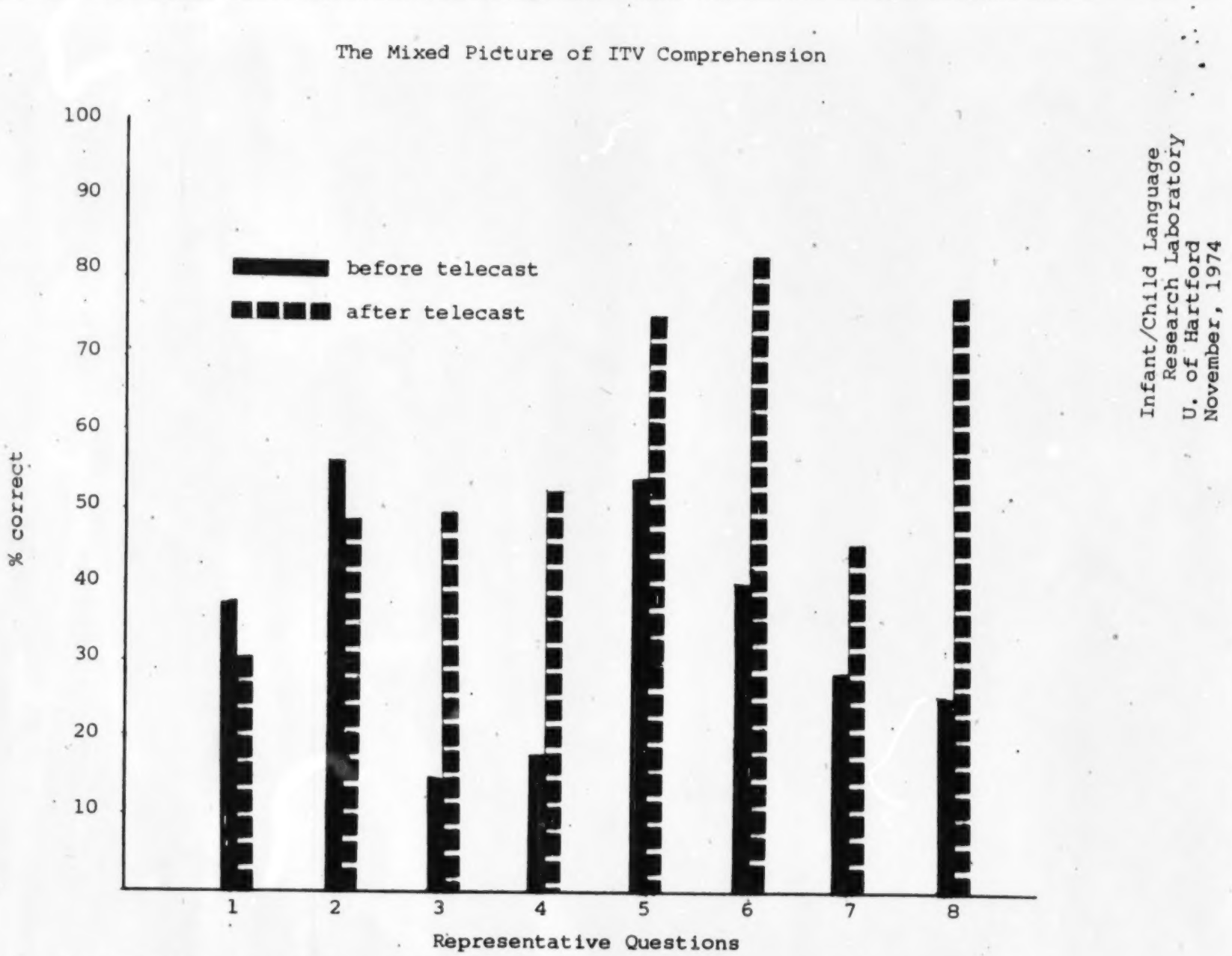

FIGURE 1 Information gain averaged 23% for 189 5th and 6th graders tested before and after 18-minute nutrition telecast. Note modest to good comprehension for some questions but actual decline for two questions. These data show that only detailed assessment reveals exactly which parts of a program do and do not teach effectively.

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Formative Evaluation

(Interim Report: February, 1975)

M U N D O R E A L

Produced for
Connecticut Public Television
by
Marrero Productions, Inc.

Funded: U.S. Office of Education - ESSA

ABSTRACT

MUNDO REAL is a 30-minute bilingual television program, first of a series of 13. The primary objective of the program is to contribute to the Puerto Rican child's sense of pride and self-esteem by providing opportunities to identify with the warmth and richness of the Puerto Rican community in mainland cities. It is anticipated that the program, which is aimed at children in grades 4-8, will also provide the general television audience with positive views of the Puerto Rican urban culture.

MUNDO REAL is about a Puerto Rican family and their friends and neighbors. The children in the family, ages 9 and 11, become involved in various events at school and in the community which result in encounters and interactions with their parents, neighbors, and members of the community. These events are designed to portray the warmth and supportiveness of the Puerto Rican family, and their pleasure and pride in their Puerto Rican heritage.

The purpose of the formative evaluation is to determine the effectiveness with which the program fulfills its communication objectives.

The initial evaluation was carried out by means of systematic written procedures. These procedures were used to assess the program's effectiveness in mobilizing attention, establishing emotional and attitude values, establishing credibility of characters and dramatic situations, and in transmitting primary and secondary factual information about the program.

This phase of the evaluation was conducted with 310 children in grades 4-8 in public and parochial schools in the City of Hartford. The sample audience was more than one-half Puerto Rican, approximately one-third black, and the remainder a mixed group of polyethnic white children. Children were tested for program comprehension immediately after viewing the program by videotape in their classrooms.

This portion of the valuation provided the following observations:

(for numerical details, see full Interim Report)

1. Attention: overall patterns of attention approximated 90-100%, with minor lags to 75% during points of extended monologue or dialogue; attention was more variable in younger than in older children, but extremely high in general--especially in view of the high levels of distraction in some of the classrooms.

2. Emotional and Attitude Values: program attained high levels of communication of the family warmth and mutual support despite some difficulties among the younger children. The program succeeded in projecting very positive feelings about Puerto Rican family culture and community interactions. The younger children tended to perceive more negative feeling than was intended to be portrayed. Almost all the children responded very positively in terms of the program's entertainment values, its anticipated community impact, and its effect on their feelings toward themselves and the Puerto Rican culture.

3. Credibility of Characters: The majority of the children easily recognized all the major characters and identified them as probable members of their own community. The mother role was particularly well established, even among the non-Puerto Rican children. Minor characters were not as easily recognized, some of the children had specific difficulty with two characters. The two policemen in the program were not considered to be realistic portrayals. It was apparent to visual observation that black children in the classes responded favorably to the presence of the black policeman.

4. Credibility of Situation: The plausibility of the home, the school, and the story action were adequately established. Many of the children doubted the reality of the friendly encounters between the school and the family, and the friendship between family and policemen. The majority of the children accepted the principal lines of the story action with no difficulty at all, and could see it as possibly taking place in their own school.

5. Primary and Secondary Facts: This one area differentiated strongly between the younger and the older children, and many of the children in all grades had difficulty understanding specific points of information contained in the dialogue. Many of the younger children were unable to follow the flashback format of the narrative. The children's difficulty with specific points of information, however, were unrelated to their positive response to the overall objectives of the program.

Except for elements where communication faltered, this stage of the evaluation demonstrates that MUNDO REAL succeeds in meeting its objectives. For most of the children in this test sample, MUNDO REAL is indeed a real world. The children paid close attention and understood most of the story. They felt comfortable with the characters. They recognized the settings. Perhaps most important, the non-Puerto Rican children came away with an enhanced sense of the humanity of the Puerto Rican culture, and the Puerto Rican children gained a sense of cultural and personal self esteem.

Succeeding stages of the evaluation scheduled for completion this Spring include testing of samples in other cities and depth interviews intended to elaborate qualitative values touched upon in this interim survey.

Bernard Z. Friedlander

Table 1

Mundo Real

Percent of Observed Attention by Scenes Across Grade Levels

Parochial and Public Schools

SCENES		PAROCHIAL SCHOOL (grades) 5th	6th	7th	8th	PUBLIC SCHOOL (groups) #1	#2	#3	#4
Living Room		100	100	100	100	100	100	90	90
Diary		100	100	100	100	100	90	100	90
Assembly #1		100	100	100	100	90	90	100	100
Delia with Mother		90	100	100	100	80	90	100	100
Travel Agency		80	85	100	95	90	80	100	100
Delia w/ Grandpa	a)	75	85	100	95	90	80	90	90
	b)	90	90	100	95	90	90	90	90
Lu and Pito		90	90	100	100	90	100	100	90
Creche Scene		90	90	100	100	90	90	90	90
Donna Ines	a)	85	90	100	100	90	90	100	90
	b)	80	90	100	95	85	80	80	80
	c)	80	90	95	90	90	90	80	70
Basketball	a)	80	80	100	100	100	90	90	90
	b)	75	75	90	95	90	80	80	80
Delia on Street		90	90	100	100	90	90	90	90
Opening presents		80	90	100	90	100	100	100	90
Water/Window		85	90	100	95	100	100	100	90
Delia w/ Father	a)	85	85	95	95	80	100	90	80
	b)	90	90	90	90	80	80	90	70
Pito wet		95	90	100	100	90	90	90	80
Assembly #2		90	90	100	100	90	80	90	90
Party		100	100	100	100	90	90	90	100
		n= 22	21	19	31	n= 20	23	19	18
		N=93				N=80			N=173
fluent Spanish		10	10	7	5	2	23	2	3
									N= 62

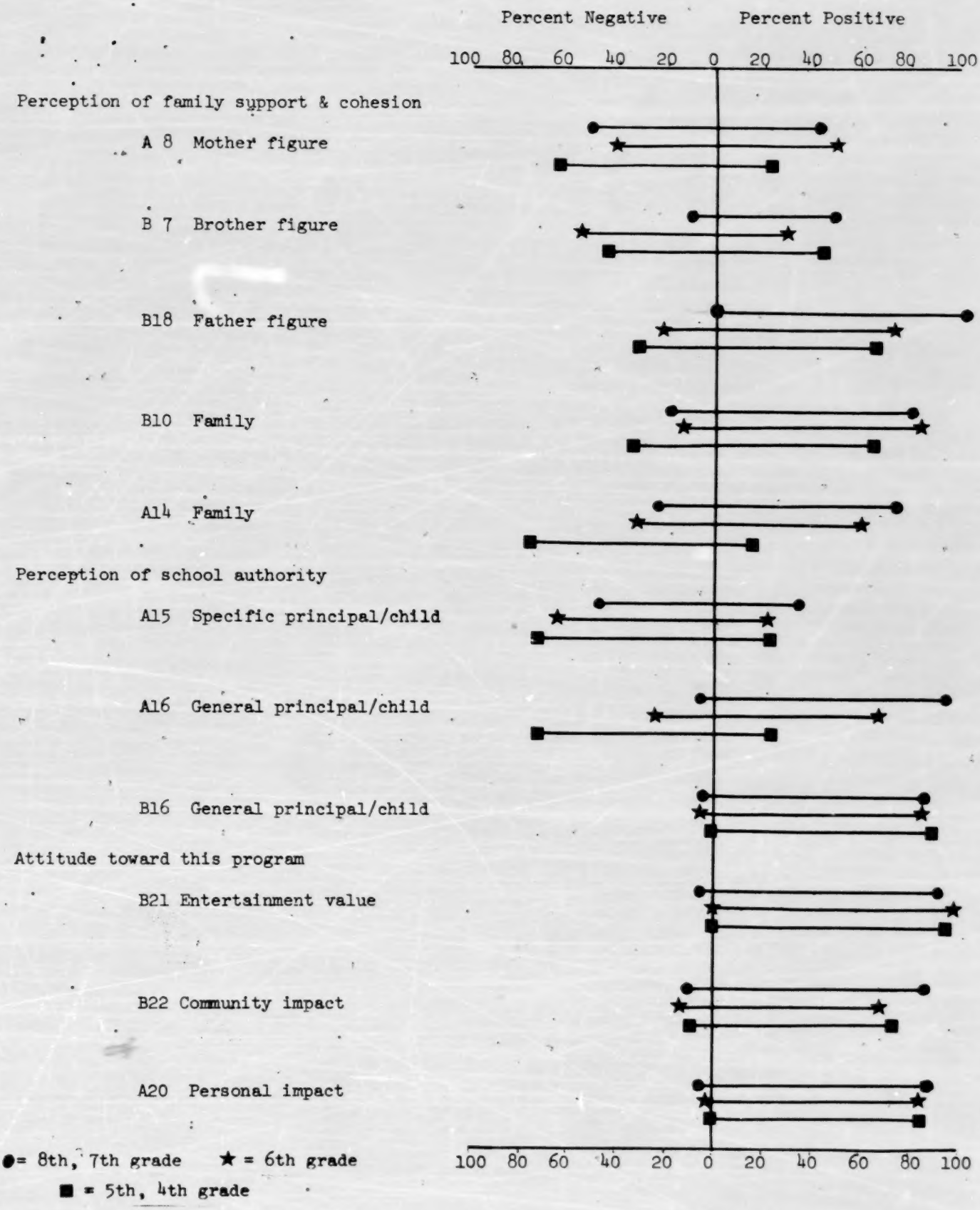
Percent Negative
Percent Positive
100 80 60 40 20 0 20 40 60 80 100
Perception of family support & cohesion
A 8 Mother figure
B 7 Brother figure
B18 Father figure
B10 Family
A14 Family
Perception of school authority
A15 Specific principal/child
A16 General principal/child
B16 General principal/child
Attitude toward this program
B21 Entertainment value
B22 Community impact
A20 Personal impact
100 80 60 40 20 0 20 40 60 80 100
●= 8th, 7th grade ★ = 6th grade
■ = 5th, 4th grade

Figure 1: Comprehension of emotional and attitudinal values by grade. Note the unanimously high positive attitudes toward the program.

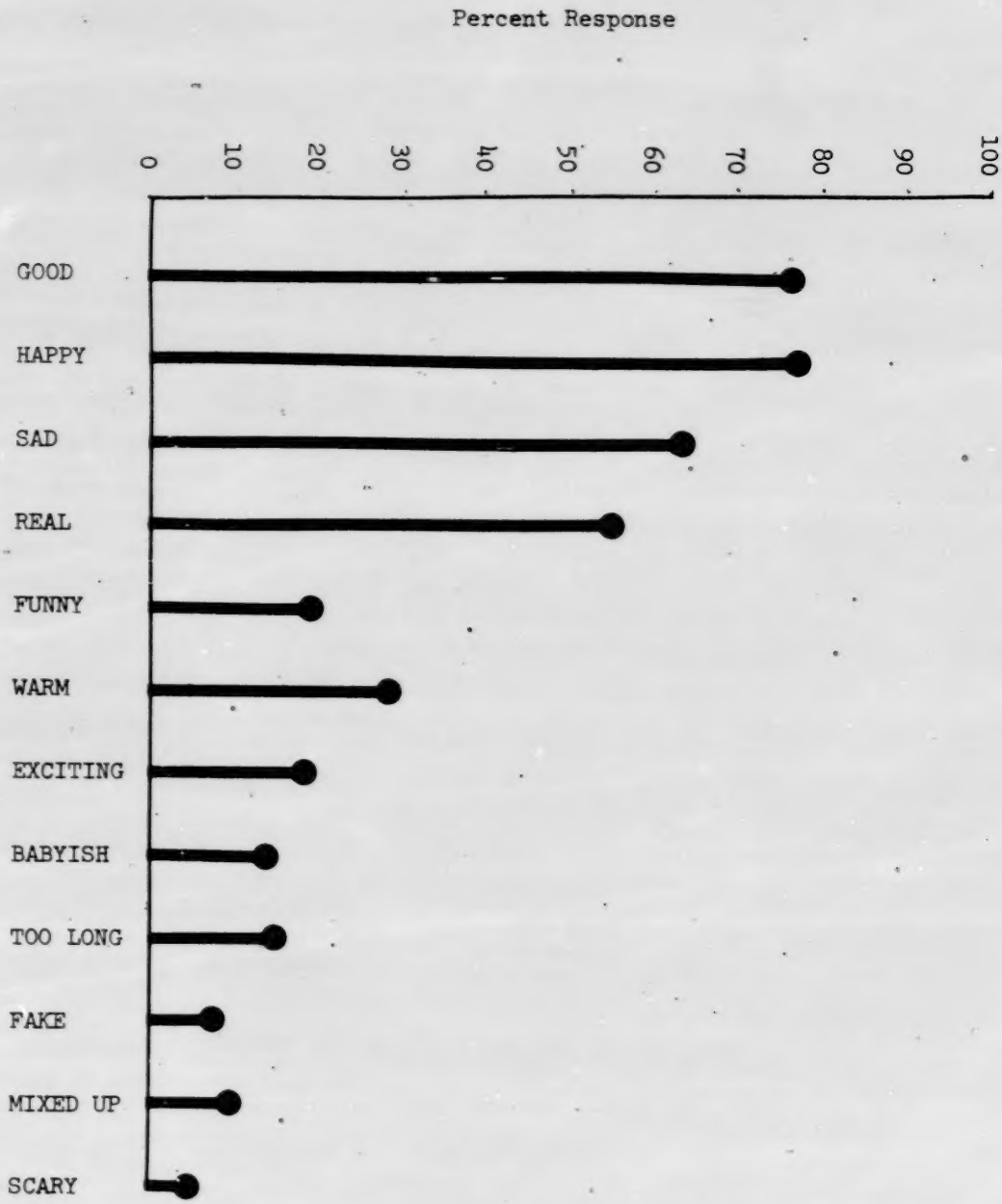

Figure 2: Children's response to program descriptors over 4-8th grade range. Children were asked to circle each word which they thought described the program.

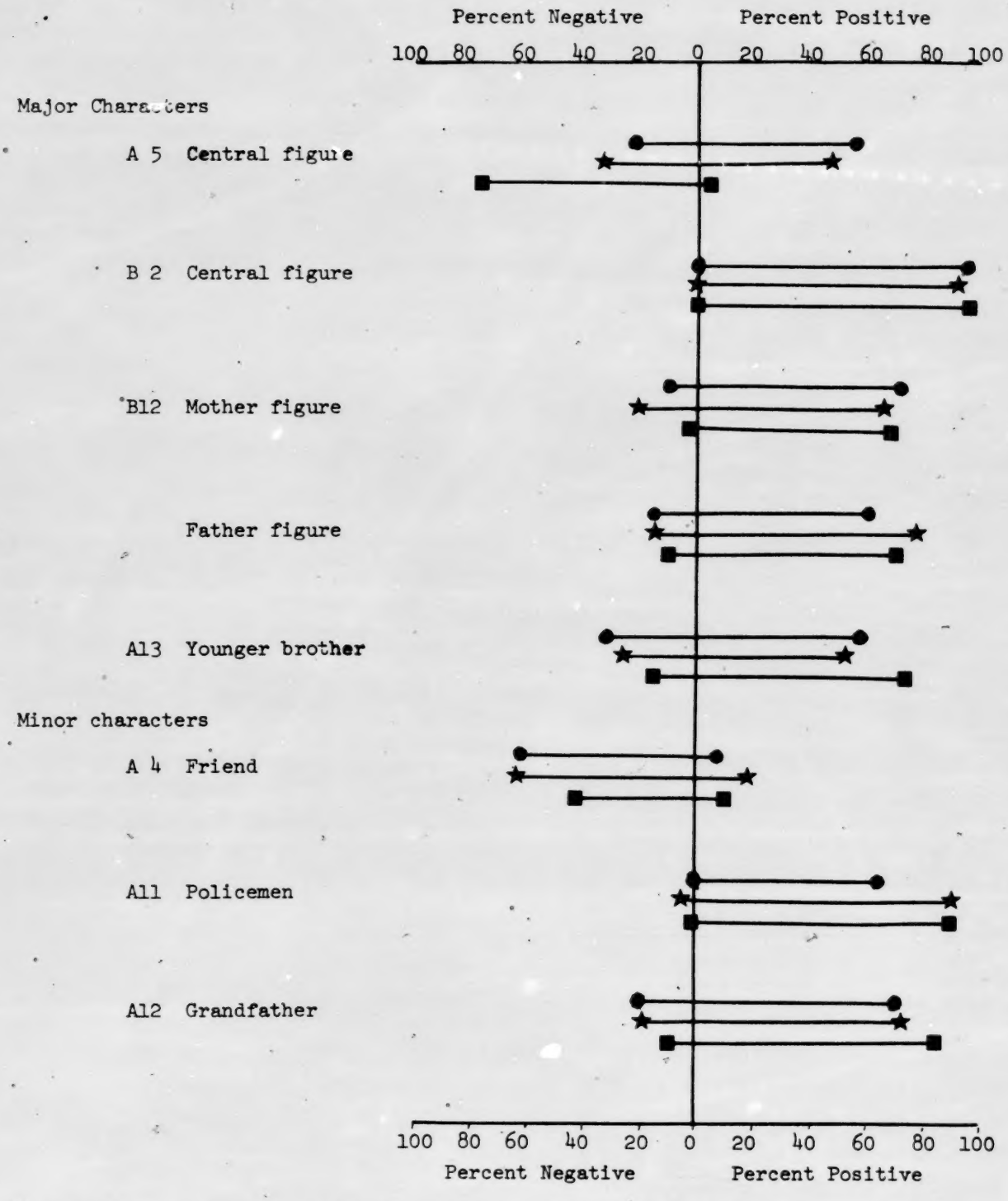

Figure 3: Credibility of characters -- recognition and identification of cast. Note the very small divergence between grade levels.

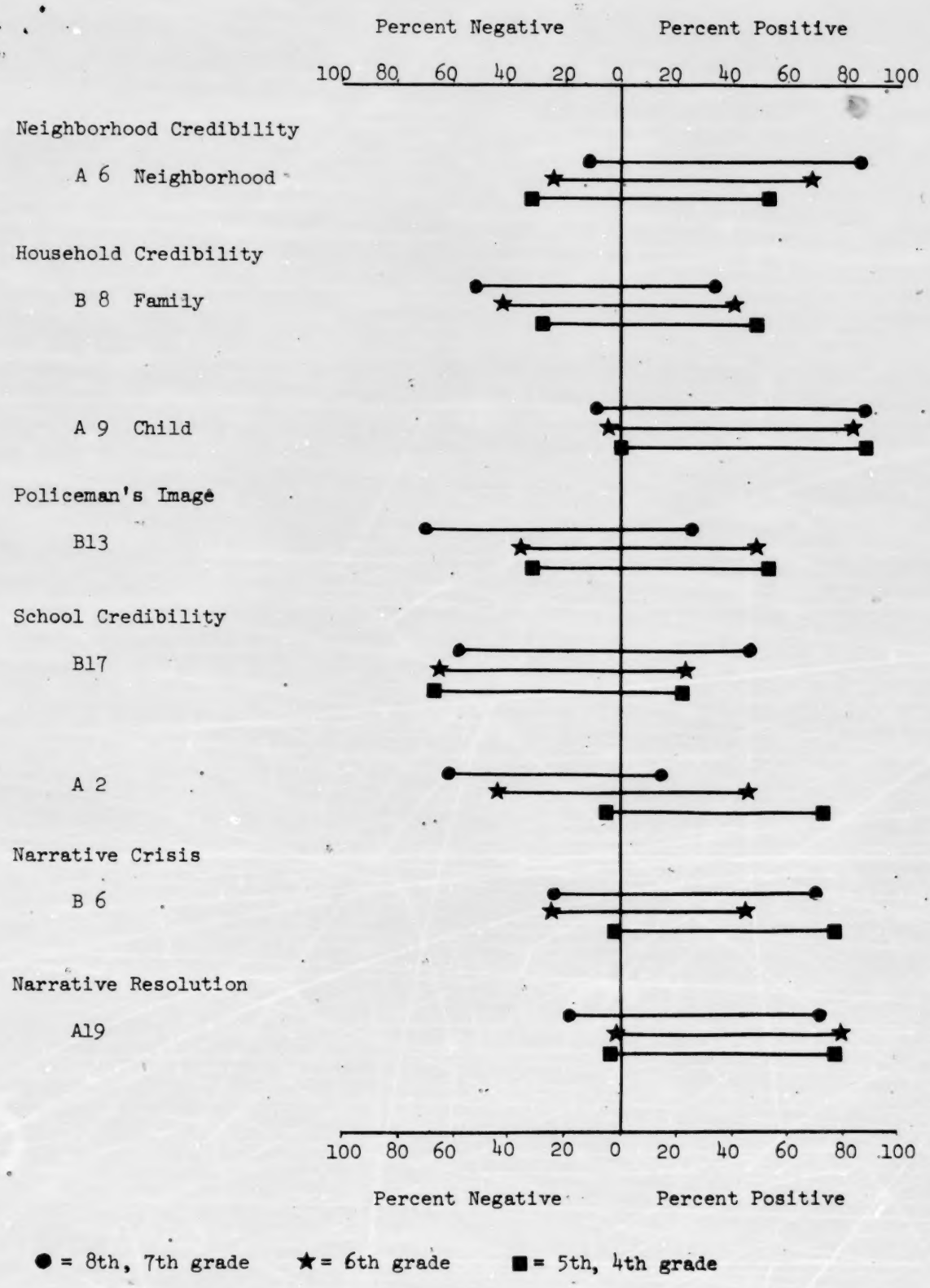

Figure 4: Situational Credibility — children's acceptance of setting and dramatic situation as realistic. Very little divergence between grades.

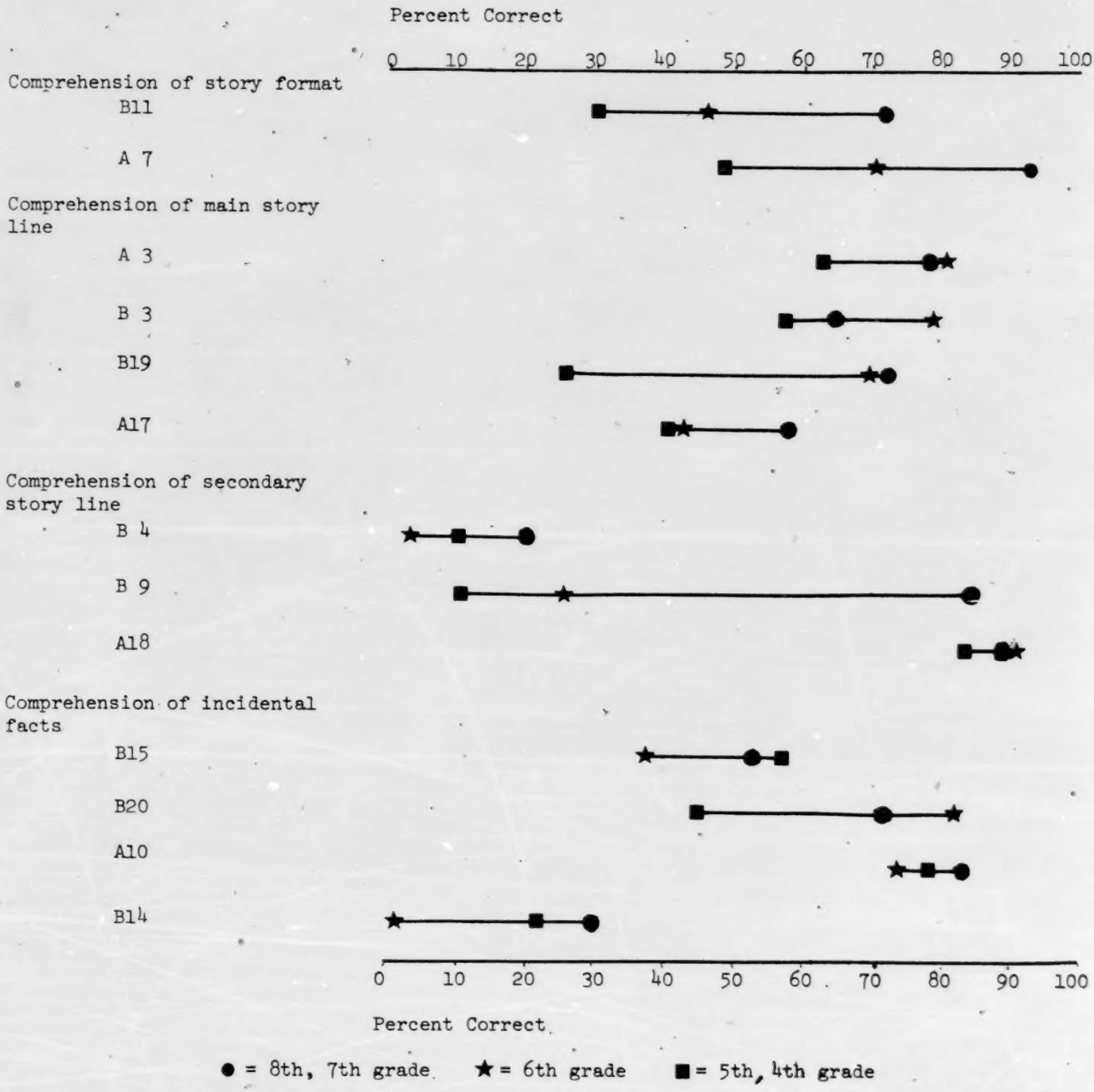

Figure 5: Comprehension of principal and secondary information relating to main story line, action and characters. Note high differentiation between younger and older children.